

WHAT IS CLAIMED IS:

1. A method for depositing an electroactive species onto a first electrode, the method comprising:
 - (a) dispensing a solution containing the electroactive species from a microdispenser so as to form a hanging drop of the solution;
 - (b) contacting the first electrode with the hanging drop of the solution, wherein the first electrode is electrically coupled with the microdispenser so as to form an electrochemical cell; and
 - (c) applying an electrical current to the electrochemical cell, wherein the application of the current effects deposition of the electroactive species onto the first electrode.
2. The method of claim 1, wherein the applying of (c) comprises placing a second electrode into contact with the drop.
3. The method of claim 2, wherein the second electrode comprises a wire loop or a needle.
4. The method of claim 2, wherein the second electrode comprises platinum.
5. The method of claim 1, wherein the microdispenser comprises a pipette.
6. The method of claim 1, wherein the first electrode comprises gold, platinum, palladium, chromium, copper, aluminum, nickel, zinc, titanium, cobalt-nickel-chromium alloy, or titanium-aluminum-vanadium alloy.
7. The method of claim 1, wherein the first electrode comprises a plurality of sensors.

8. The method of claim 1, wherein the current has a density of about 5 to about 25 mA/cm².
9. The method of claim 8, wherein the current has a density of about 10 to about 20 mA/cm².
- 5 10. The method of claim 1, wherein the electroactive species comprises a metal salt.
11. The method of claim 10, wherein the metal salt comprises hydrogen hexachloroplatinate.
12. The method of claim 10, wherein the current is about 20 to about 60 μ A, and the voltage is about 5 to about 15 volts.
- 10 13. The method of claim 12, wherein the current is about 45 to about 50 μ A, and the voltage is about 8 to about 10 volts.
14. The method of claim 1, wherein the electroactive species comprises an enzyme.
15. The method of claim 14, wherein the enzyme comprises glucose oxidase, lactate oxidase or amino acid oxidase.
- 15 16. The method of claim 14, wherein the current is about 5 to about 50 μ A, and the voltage is about 0.05 to about 9 volts.
17. The method of claim 16, wherein the current is about 15 to about 30 μ A, and the voltage is about 0.15 to about 0.5 volts.
18. The method of claim 14, wherein the current applying of (c) comprises
20 applying a series of current pulses.
19. The method of claim 18, wherein the series of current pulses comprises applying current pulses of increasing amperage.

20. The method of claim 19, wherein the current pulses are about 5 to about 40 μ A.
21. The method of claim 1, wherein the solution comprises a stabilizing protein, a surface active agent, an emulsifying agent, and a buffer.
22. The method of claim 21, wherein the stabilizing protein comprises albumin.
- 5 23. The method of claim 1, wherein the dispensed solution has a volume of about 0.5 to about 50 μ l.
24. The method of claim 1, wherein the dispensed solution has a volume of about 0.5 to about 10 μ l.
25. The method of claim 14, wherein the solution comprises gelatin or albumin.
- 10 26. An apparatus for depositing an electroactive species onto an electrode, the apparatus comprising:
- (a) a microdispenser capable of dispensing a solution containing the electroactive species so as to form a hanging drop of the solution;
 - (b) an electrode holder capable of placing the electrode in electrical contact with the microdispenser so as to form an electrochemical cell; and
 - 15 (c) a potentiometer disposed between the microdispenser and the electrode holder.